JOURNAL OF NUCLEAR MATERIALS

Volume 182, May/June 1991

CONTENTS

Segregation in DIN 1.4914 martensitic stainless steel under proton irradiation, *P. Jung and H. Klein* 1
Strength and Young's modulus of silicon carbide layers of HTGR fuel particles at high temperatures, *K. Minato and K. Fukuda* 6
Equation of state and specific heats of U–C–F gas mixtures, *W. Boersma-Klein, J. Kistemaker and H.N. Stein* 11
Transport phenomena in a dissociating U–C–F gas mixture, *W. Boersma-Klein and J. Kistemaker* 24
The formation of hydrogen permeation barriers on steels by aluminising, *K.S. Forcey, D.K. Ross and C.H. Wu* 36
Transgranular fracture of Fast Reactor irradiated stainless steel, *I.J. Ford* 52
Phase equilibria in the $U–U_3Si_2–UAl_2$ system, *Y.I. Petrov, Z.M. Alekseeva and D.D. Petrov* 60
Contribution of interstitial migration to segregation in concentrated alloys, *S.M. Murphy* 73
Reduction of the thermal conductivity of SiC by radiation damage, *M. Rohde* 87
The chemisorption of hydrogen on porous graphites at low pressure and at elevated temperature, *E. Hoinkis* 93
Retention of sub-eV atomic tritium and protium in pyrolytic graphite, *I.S. Youle and A.A. Haasz* 107
Kinetics of reductive extraction of actinide and lanthanide elements from molten fluoride into liquid bismuth, *H. Moriyama, M. Miyazaki, Y. Asaoka, K. Moritani and J. Oishi* 113
Air oxidation of a Mn–Cr austenitic steel of potential use for fusion reactor structural applications between 1073 and 1473 K at 10^5 Pa, *P. Nanni, V. Buscaglia, G. Battilana and E. Ruedl* 118
Thermal desorption of deuterium from polycrystalline nickel pre-implanted with helium, *S.-Q. Shi, E. Abramov, D.A. Thompson and W.W. Smeltzer* 128
Chemical and topographical properties of tritium-resistant stainless steel surfaces formed by chromium diffusion coating, *T. Hirabayashi, Y. Sun, H. Yamamoto, Y. Toida and M. Saeki* 135
Effects of 100 keV He-ion irradiation on early stage of plastic deformation of copper polycrystals at 77 K, *K. Shinohara, M. Yasuda, K. Yasuda and M. Kutsuwada* 145
Corrosion of Zr–2.5 wt% Nb pressure tube material in D_2O steam:. Deuterium depth distributions measured by nuclear reaction analysis, *T. Laursen, J.R. Leslie and R.L. Tapping* 151
The early stage of aqueous corrosion of Zr–2.5 wt% Nb and Zircaloy-2 pressure tube materials, *T. Laursen, J.R. Leslie and R.L. Tapping* 158
Self-diffusion in α-Zr single crystals, *M. Lubbehusen, K. Vieregge, G.M. Hood, H. Mehrer and Chr. Herzig* 164
Oxidation of Zircaloy by steam, *M. Moalem and D.R. Olander* 170
Further study on sintering behavior of sol–gel ThO_2 microspheres, *S. Yamagishi and Y. Takahashi* 195
The attack of titanium–6 wt% aluminium–4 wt% vanadium alloy by a molten uranium–5.7 wt% manganese alloy at 1015°C, *F.J. Moran and R.A. Jarman* 203
Thermal extraction apparatus for tritium assay and release rate experiments from neutron-irradiated lithium oxide, *J.F. Quanci* 214
Diffusion of the fission metals cesium and silver in reactor-grade graphite, *F.F. Zherdev and P.A. Platonov* 223
Tensile properties of 9Cr–1MoVNb and 12Cr–1MoVW steels irradiated to 23 dpa at 390 to 550°C, *R.L. Klueh and J.M. Vitek* 230
The kinetics of radiation point defect accumulation in metals during irradiation, *K.P. Gurov and A.B. Tsepelev* 240
Auger electron spectroscopy depth profiling of silicon long-term wall samples exposed in the Tokamak de Varennes, *R.W. Paynter, C. Boucher, B. Terreault and D. Thériault* 247

Letters to the Editors

On the origin of freely migrating defects in ion and neutron irradiated metals, *V. Naundorf* 254
Hot hardness and indentation creep studies on Ti modified stainless steel cladding material for nuclear fuel pins, *T.R.G. Kutty and C. Ganguly* 258
Release of volatile fission products from ThO_2 with a simulated burnup of 4 at%, *Hj. Matzke and R.A. Verrall* 261
The interaction between UO_2 and platinum at 1673 K in a reducing atmosphere, *G.J. Small and A.J. Walter* 265
Comments on the paper "The compensation effect on diffusion constants of hydrogen in metals" by K. Watanabe, K. Ashida and M. Sonobe, J. Nucl. Mater. 173 (1990) 294, *T. Tanabe* 270
Reply to the comments by Tanabe on "The compensation effect on the diffusion constants of hydrogen in metals", *K. Watanabe, K. Ashida and M. Matsuyama* 274
Demonstration of plutonium etching in a CF_4/O_2 RF glow discharge, *J.C. Martz, D.W. Hess, J.M. Haschke, J.W. Ward and R.F. Flamm* 277
Accelerated helium bubble growth in aluminum in the presence of lead precipitates, *R.N. Wright, C.D. Van Siclen, S.G. Usmar and M.E. Mochel* 281
Effect of copper on Zircaloy corrosion in BWR, *D. Cubicciotti* 287

Erratum 291
Announcements 292
Author index 297
Subject index 299